

ABSTRACT

A Si substrate (1) is cleansed by acid treatment, for example, and heated to remove attachments on its surface. Then, nitrogen is turned into a plasma and supplied to the surface of the Si substrate (1), and due to the surfactant effect of radical nitrogen, an AlN crystal layer (80) is formed on the surface of the Si substrate (1), not matching the lattice of the Si crystal. The lattice distance of the AlN crystal layer (80) substantially matches the usual lattice constant of AlN crystals, so there is no strain in the Al crystal layer (80) caused by a difference in lattice constant with the Si substrate (1), as would be the case when the lattice matches with the Si substrate (1).